15

SEQUENCE LISTING

<110> Hilton, Douglas J.
Alexander, Warren S.
Viney, Elizabeth M.
Wilson, Tracy A.
Richardson, Rachel
Starr, Robyn
Nicholson, Sandra E.
Metcalf, Donald
Nicola, Nicos A.

<120> THERAPEUTIC AND DIAGNOSTIC AGENTS

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<140> 08/962,560
<141> 1997-10-31

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<170> PatentIn Ver. 2.1

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gacgctatgg cccacccctc cagctggccc ctcgagtagg                       160

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Met Val Ala Arg Asn Gln Val Ala Ala Asp Asn Ala Ile Ser Pro Ala
  1               5                  10                  15

gca gag ccc cga cgg cgg tca gag ccc tcc tcg tcc tcg tct tcg tcc   256
Ala Glu Pro Arg Arg Arg Ser Glu Pro Ser Ser Ser Ser Ser Ser Ser
             20                  25                  30

tcg cca gcg gcc ccc gtg cgt ccc cgg ccc tgc ccg gcg gtc cca gcc   304
Ser Pro Ala Ala Pro Val Arg Pro Arg Pro Cys Pro Ala Val Pro Ala
         35                  40                  45

cca gcc cct ggc gac act cac ttc cgc acc ttc cgc tcc cac tcc gat   352
Pro Ala Pro Gly Asp Thr His Phe Arg Thr Phe Arg Ser His Ser Asp
     50                  55                  60

tac cgg cgc atc acg cgg acc agc gcg ctc ctg gac gcc tgc ggc ttc   400
Tyr Arg Arg Ile Thr Arg Thr Ser Ala Leu Leu Asp Ala Cys Gly Phe
 65                  70                  75                  80

tat tgg gga ccc ctg agc gtg cac ggg gcg cac gag cgg ctg cgt gcc   448
Tyr Trp Gly Pro Leu Ser Val His Gly Ala His Glu Arg Leu Arg Ala
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gag ccc gtg ggc acc ttc ttg gtg cgc gac agt cgt caa cgg aac tgc   496
Glu Pro Val Gly Thr Phe Leu Val Arg Asp Ser Arg Gln Arg Asn Cys
            100                 105                 110

ttc ttc gcg ctc agc gtg aag atg gct tcg ggc ccc acg agc atc cgc   544
Phe Phe Ala Leu Ser Val Lys Met Ala Ser Gly Pro Thr Ser Ile Arg
        115                 120                 125

gtg cac ttc cag gcc ggc cgc ttc cac ttg gac ggc agc cgc gag acc   592
Val His Phe Gln Ala Gly Arg Phe His Leu Asp Gly Ser Arg Glu Thr
    130                 135                 140

ttc gac tgc ctt ttc gag ctg ctg gag cac tac gtg gcg gcg ccg cgc   640
Phe Asp Cys Leu Phe Glu Leu Leu Glu His Tyr Val Ala Ala Pro Arg
145                 150                 155                 160

cgc atg ttg ggg gcc ccg ctg cgc cag cgc cgc gtg cgg ccg ctg cag   688
Arg Met Leu Gly Ala Pro Leu Arg Gln Arg Arg Val Arg Pro Leu Gln
                165                 170                 175

gag ctg tgt cgc cag cgc atc gtg gcc gcc gtg ggt cgc gag aac ctg   736
Glu Leu Cys Arg Gln Arg Ile Val Ala Ala Val Gly Arg Glu Asn Leu
            180                 185                 190

gcg cgc atc cct ctt aac ccg gta ctc cgt gac tac ctg agt tcc ttc   784
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Ala Arg Ile Pro Leu Asn Pro Val Leu Arg Asp Tyr Leu Ser Ser Phe
195 200 205

ccc ttc cag atc tga ccggctg ccgctgtgcc gcagcattaa gtgggggcgc 836
Pro Phe Gln Ile
210

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Ser Pro Ala Ala Pro Val Arg Pro Arg Pro Cys Pro Ala Val Pro Ala
35 40 45

Pro Ala Pro Gly Asp Thr His Phe Arg Thr Phe Arg Ser His Ser Asp
50 55 60

Tyr Arg Arg Ile Thr Arg Thr Ser Ala Leu Leu Asp Ala Cys Gly Phe
65 70 75 80

Tyr Trp Gly Pro Leu Ser Val His Gly Ala His Glu Arg Leu Arg Ala
85 90 95

Glu Pro Va Gly Thr Phe Leu Val Arg Asp Ser Arg Gln Arg Asn Cys
100 105 110

Phe Phe Ala Leu Ser Val Lys Met Ala Ser Gly Pro Thr Ser Ile Arg
115 120 125

Val His Phe Gln Ala Gly Arg Phe His Leu Asp Gly Ser Arg Glu Thr
130 135 140

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Phe Asp Cys Leu Phe Glu Leu Leu Glu His Tyr Val Ala Ala Pro Arg
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Arg Met Leu Gly Ala Pro Leu Arg Gln Arg Arg Val Arg Pro Leu Gln
                165                 170                 175

Glu Leu Cys Arg Gln Arg Ile Val Ala Ala Val Gly Arg Glu Asn Leu
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Ala Arg Ile Pro Leu Asn Pro Val Leu Arg Asp Tyr Leu Ser Ser Phe
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                                                Met Thr Leu Arg
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tgc ctg gag ccc tcc ggg aat gga gcg gac agg acg cgg agc cag tgg   282
Cys Leu Glu Pro Ser Gly Asn Gly Ala Asp Arg Thr Arg Ser Gln Trp
  5                  10                  15                  20

ggg acc gcg ggg ttg ccg gag gaa cag tcc ccc gag gcg gcg cgt ctg   330
Gly Thr Ala Gly Leu Pro Glu Glu Gln Ser Pro Glu Ala Ala Arg Leu
                25                  30                  35

gcg aaa gcc ctg cgc gag ctc agt caa aca gga tgg tac tgg gga agt   378
Ala Lys Ala Leu Arg Glu Leu Ser Gln Thr Gly Trp Tyr Trp Gly Ser
            40                  45                  50

atg act gtt aat gaa gcc aaa gag aaa tta aaa gag gct cca gaa gga   426
Met Thr Val Asn Glu Ala Lys Glu Lys Leu Lys Glu Ala Pro Glu Gly
        55                  60                  65

act ttc ttg att aga gat agt tcg cat tca gac tac cta cta act ata   474
Thr Phe Leu Ile Arg Asp Ser Ser His Ser Asp Tyr Leu Leu Thr Ile
    70                  75                  80
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tcc gtt aag acg tca gct gga ccg act aac ctg cgg att gag tac caa   522
Ser Val Lys Thr Ser Ala Gly Pro Thr Asn Leu Arg Ile Glu Tyr Gln
 85                  90                  95                 100

gat ggg aaa ttc aga ttg gat tct atc ata tgt gtc aag tcc aag ctt   570
Asp Gly Lys Phe Arg Leu Asp Ser Ile Ile Cys Val Lys Ser Lys Leu
                105                 110                 115

aaa cag ttt gac agt gtg gtt cat ctg att gac tac tat gtc cag atg   618
Lys Gln Phe Asp Ser Val Val His Leu Ile Asp Tyr Tyr Val Gln Met
            120                 125                 130

tgc aag gat aaa cgg aca ggc cca gaa gcc cca cgg aat ggg act gtt   666
Cys Lys Asp Lys Arg Thr Gly Pro Glu Ala Pro Arg Asn Gly Thr Val
        135                 140                 145

cac ctg tac ctg acc aaa cct ctg tat aca tca gca ccc act ctg cag   714
His Leu Tyr Leu Thr Lys Pro Leu Tyr Thr Ser Ala Pro Thr Leu Gln
    150                 155                 160

cat ttc tgt cga ctc gcc att aac aaa tgt acc ggt acg atc tgg gga   762
His Phe Cys Arg Leu Ala Ile Asn Lys Cys Thr Gly Thr Ile Trp Gly
165                 170                 175                 180

ctg cct tta cca aca aga cta aaa gat tac ttg gaa gaa tat aaa ttc   810
Leu Pro Leu Pro Thr Arg Leu Lys Asp Tyr Leu Glu Glu Tyr Lys Phe
                185                 190                 195

cag gta taagtatttc tctctctttt tcgtttttt ttaaaaaaaa aaaaacacat    866
Gln Val

gcctcatata gactatctcc gaatgcagct atgtgaaaga gaacccagag gccctcctct 926

ggataactgc gcagaattct ctcttaagga cagttgggct cagtctaact taaaggtgtg 986

aagatgtagc taggtatttt aaagttcccc ttaggtagtt ttagctgaat gatgctttct 1046

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C5 cont.

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Ala Ala Arg Leu Ala Lys Ala Leu Arg Glu Leu Ser Gln Thr Gly Trp
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Tyr Trp Gly Ser Met Thr Val Asn Glu Ala Lys Glu Lys Leu Lys Glu
      50                  55                  60

Ala Pro Glu Gly Thr Phe Leu Ile Arg Asp Ser Ser His Ser Asp Tyr
 65                  70                  75                  80

Leu Leu Thr Ile Ser Val Lys Thr Ser Ala Gly Pro Thr Asn Leu Arg
                 85                  90                  95

Ile Glu Tyr Gln Asp Gly Lys Phe Arg Leu Asp Ser Ile Ile Cys Val
            100                 105                 110

Lys Ser Lys Leu Lys Gln Phe Asp Ser Val Val His Leu Ile Asp Tyr
        115                 120                 125

Tyr Val Gln Met Cys Lys Asp Lys Arg Thr Gly Pro Glu Ala Pro Arg
    130                 135                 140

Asn Gly Thr Val His Leu Tyr Leu Thr Lys Pro Leu Tyr Thr Ser Ala
145                 150                 155                 160

Pro Thr Leu Gln His Phe Cys Arg Leu Ala Ile Asn Lys Cys Thr Gly
                165                 170                 175

Thr Ile Trp Gly Leu Pro Leu Pro Thr Arg Leu Lys Asp Tyr Leu Glu
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Glu Tyr Lys Phe Gln Val
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Met Ser Arg Pro Leu Asp Thr Ser Leu Arg Leu Lys Thr Phe Ser Ser
             15                  20                  25

aaa agc gag tac cag ctg gtg gtg aac gcc gtg cgc aag ctg cag gag   146
Lys Ser Glu Tyr Gln Leu Val Val Asn Ala Val Arg Lys Leu Gln Glu
         30                  35                  40
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agc gga ttc tac tgg agc gcc gtg acc ggc ggc gag gcg aac ctg ctg   194
Ser Gly Phe Tyr Trp Ser Ala Val Thr Gly Gly Glu Ala Asn Leu Leu
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ctc agc gcc gag ccc gcg ggc acc ttt ctt atc cgc gac agc tcg gac   242
Leu Ser Ala Glu Pro Ala Gly Thr Phe Leu Ile Arg Asp Ser Ser Asp
 60                  65                  70                  75

cag cgc cac ttc ttc acg ttg agc gtc aag acc cag tcg ggg acc aag   290
Gln Arg His Phe Phe Thr Leu Ser Val Lys Thr Gln Ser Gly Thr Lys
                 80                  85                  90

aac cta cgc atc cag tgt gag ggg ggc agc ttt tcg ctg cag agt gac   338
Asn Leu Arg Ile Gln Cys Glu Gly Gly Ser Phe Ser Leu Gln Ser Asp
             95                  100                 105

ccc cga agc acg cag cca gtt ccc cgc ttc gac tgt gta ctc aag ctg   386
Pro Arg Ser Thr Gln Pro Val Pro Arg Phe Asp Cys Val Leu Lys Leu
        110                 115                 120

gtg cac cac tac atg ccg cct cca ggg acc ccc tcc ttt tct ttg cca   434
Val His His Tyr Met Pro Pro Pro Gly Thr Pro Ser Phe Ser Leu Pro
    125                 130                 135

ccc acg gaa ccc tcg tcc gaa gtt ccg gag cag cca cct gcc cag gca   482
Pro Thr Glu Pro Ser Ser Glu Val Pro Glu Gln Pro Pro Ala Gln Ala
140                 145                 150                 155

ctc ccc ggg agt acc ccc aag aga gct tac tac atc tat tct ggg ggc   530
Leu Pro Gly Ser Thr Pro Lys Arg Ala Tyr Tyr Ile Tyr Ser Gly Gly
                160                 165                 170

gag aag att ccg ctg gta ctg agc cga cct ctc tcc tcc aac gtg gcc   578
Glu Lys Ile Pro Leu Val Leu Ser Arg Pro Leu Ser Ser Asn Val Ala
            175                 180                 185

acc ctc cag cat ctt tgt cgg aag act gtc aac ggc cac ctg gac tcc   626
Thr Leu Gln His Leu Cys Arg Lys Thr Val Asn Gly His Leu Asp Ser
        190                 195                 200

tat gag aaa gtg acc cag ctg cct gga ccc att cgg gag ttc ctg gat   674
Tyr Glu Lys Val Thr Gln Leu Pro Gly Pro Ile Arg Glu Phe Leu Asp
    205                 210                 215

cag tat gat gct cca ctt taaggagcaa aagggtcaga gggggggcctg         722
Gln Tyr Asp Ala Pro Leu
220                 225

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Leu Val Val Asn Ala Val Arg Lys Leu Gln Glu Ser Gly Phe Tyr Trp
35 40 45

Ser Ala Val Thr Gly Gly Glu Ala Asn Leu Leu Leu Ser Ala Glu Pro
50 55 60

Ala Gly Thr Phe Leu Ile Arg Asp Ser Ser Asp Gln Arg His Phe Phe
65 70 75 80

Thr Leu Ser Val Lys Thr Gln Ser Gly Thr Lys Asn Leu Arg Ile Gln
85 90 95

Cys Glu Gly Gly Ser Phe Ser Leu Gln Ser Asp Pro Arg Ser Thr Gln
100 105 110

Pro Val Pro Arg Phe Asp Cys Val Leu Lys Leu Val His His Tyr Met
115 120 125

Pro Pro Pro Gly Thr Pro Ser Phe Ser Leu Pro Pro Thr Glu Pro Ser
130 135 140

Ser Glu Val Pro Glu Gln Pro Pro Ala Gln Ala Leu Pro Gly Ser Thr
145 150 155 160

Pro Lys Arg Ala Tyr Tyr Ile Tyr Ser Gly Gly Glu Lys Ile Pro Leu
165 170 175

Val Leu Ser Arg Pro Leu Ser Ser Asn Val Ala Thr Leu Gln His Leu
180 185 190

Cys Arg Lys Thr Val Asn Gly His Leu Asp Ser Tyr Glu Lys Val Thr
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Gln Leu Pro Gly Pro Ile Arg Glu Phe Leu Asp Gln Tyr Asp Ala Pro
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Leu
225

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             20                  25                  30

Pro Ala Ala Pro Ala Arg Pro Arg Pro Cys Pro Ala Val Pro Ala Pro
         35                  40                  45

Ala Pro Gly Asp Thr His Phe Arg Thr Phe Arg Ser His Ala Asp Tyr
     50                  55                  60

Arg Arg Ile Thr Arg Ala Ser Ala Leu Leu Asp Ala Cys Gly Phe Tyr
 65                  70                  75                  80

Trp Gly Pro Leu Ser Val His Gly Ala His Glu Arg Leu Arg Ala Glu
                 85                  90                  95

Pro Val Gly Thr Phe Leu Val Arg Asp Ser Arg Gln Arg Asn Cys Phe
            100                 105                 110
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Phe Ala Leu Ser Val Lys Met Ala Ser Gly Pro Thr Ser Ile Arg Val
115 120 125

His Phe Gln Ala Gly Arg Phe His Leu Asp Gly Ser Arg Glu Ser Phe
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Asp Cys Leu Phe Glu Leu Leu Glu His Tyr Val Ala Ala Pro Arg Arg
145 150 155 160

Met Leu Gly Ala Pro Leu Arg Gln Arg Arg Val Arg Pro Leu Gln Glu
165 170 175

Leu Cys Arg Gln Arg Ile Val Ala Thr Val Gly Arg Glu Asn Leu Ala
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acaaactgaa tcacgaaacc acagtgtcct taaaataggt ctgaccgcct gaatccctgg 240

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ctggggaccc ctgagcgtgc atggggcgca cgaacggctg cgttccgaac ccgtgggcac 2040

cttcttggtg cgcgacagtc gccagcggaa ctgcttcttc gcgctcagcg tgaagatggc 2100

ttcgggcccc acgagcattc gtgtgcactt ccaggccggc cgcttccacc tggacggcaa 2160

ccgcgagacc ttcgactgcc tcttcgagct gctggagcac tacgtggcgg cgccgcgccg 2220

catgttgggg gccccactgc gccagcgccg cgtgcggccg ctgcaggagc tgtgtcgcca 2280

gcgcatcgtg gccgccgtgg gtcgcgagaa cctggcacgc atccctctta acccggtact 2340

ccgtgactac ctgagttcct tccccttcca gatctgaccg gctgccgccg tgcccgcaga 2400

attaagtggg agcgccttat tatttcttat tattaattat tattattttt ctggaaccac 2460

gtgggagccc tccccgccta ggtcggaggg agtgggtgtg gagggtgaga tccctcccac 2520

ttctggctgg agaccttatc ccgcctctcg gggggcctcc cctcctggtg ctccctcccg 2580

gtccccctgg ttgtagcagc ttgtgtctgg ggccaggacc tgaactccac gcctacctct 2640

ccatgtttac atgttcccag tatctttgca caaaccaggg gtgggggagg gtctctggct 2700

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actttattat gaaagttttt ttttttaaag aaacaaagat ttctaga 2807

<210> 12
<211> 212
<212> PRT
<213> Rattus norvegicus

<400> 12

Met Val Ala Arg Asn Gln Val Glu Ala Asp Asn Ala Ile Ser Pro Ala
1 5 10 15

Ser Glu Pro Arg Arg Arg Pro Glu Pro Ser Ser Ser Ser Ser Ser Ser
20 25 30

Ser Pro Ala Ala Pro Ala Arg Pro Arg Pro Cys Pro Val Val Pro Ala
35 40 45

Pro Ala Pro Gly Asp Thr His Phe Arg Thr Phe Arg Ser His Ser Asp
50 55 60

Tyr Arg Arg Ile Thr Arg Thr Ser Ala Leu Leu Asp Ala Cys Gly Phe
65 70 75 80

Tyr Trp Gly Pro Leu Ser Val His Gly Ala His Glu Arg Leu Arg Ser
85 90 95

Glu Pro Val Gly Thr Phe Leu Val Arg Asp Ser Arg Gln Arg Asn Cys
100 105 110

Phe Phe Ala Leu Ser Val Lys Met Ala Ser Gly Pro Thr Ser Ile Arg
115 120 125

Val His Phe Gln Ala Gly Arg Phe His Leu Asp Gly Asn Arg Glu Thr
130 135 140

Phe Asp Cys Leu Phe Glu Leu Leu Glu His Tyr Val Ala Ala Pro Arg
145 150 155 160

Arg Met Leu Gly Ala Pro Leu Arg Gln Arg Arg Val Arg Pro Leu Gln
165 170 175

Glu Leu Cys Arg Gln Arg Ile Val Ala Ala Val Gly Arg Glu Asn Leu
180 185 190

Ala Arg Ile Pro Leu Asn Pro Val Leu Arg Asp Tyr Leu Ser Ser Phe
195 200 205

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Pro Phe Gln Ile
    210


<210> 13
<211> 1611
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (263)..(1525)

<400> 13
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gtgtgacccg gtggctttgt tccaggcatt ccggtgattt cctccgggca gtccgcagaa 120

gccgcagcgg ccgcccgcgc tctctctgca gtctccacac ccgggagagc ctgagcccgc 180

gtcacgcccc tcagcccccg ctgagtccct tctctgttgt cgcgtccgaa tcgagttccc 240

ggaatcagac ggtgccccat ag atg gcc agc ttt ccc ccg agg gtt aac gag  292
                        Met Ala Ser Phe Pro Pro Arg Val Asn Glu
                          1               5                  10

aaa gag atc gtg aga tca cgt act ata ggg gaa ctc ttg gct cca gca   340
Lys Glu Ile Val Arg Ser Arg Thr Ile Gly Glu Leu Leu Ala Pro Ala
                 15                  20                  25

gct cct ttt gac aag aaa tgt ggt ggt gag aac tgg acg gtt gct ttt   388
Ala Pro Phe Asp Lys Lys Cys Gly Gly Glu Asn Trp Thr Val Ala Phe
             30                  35                  40

gct cct gat ggt tcc tac ttt gcg tgg tca caa gga tat cgc ata gtg   436
Ala Pro Asp Gly Ser Tyr Phe Ala Trp Ser Gln Gly Tyr Arg Ile Val
         45                  50                  55

aag ctt gtc ccg tgg tcc cag tgc cgt aag aac ttt ctt ttg cat ggt   484
Lys Leu Val Pro Trp Ser Gln Cys Arg Lys Asn Phe Leu Leu His Gly
     60                  65                  70

tcc aaa aat gtt acc aat tca agc tgt cta aaa ttg gca aga caa aac   532
Ser Lys Asn Val Thr Asn Ser Ser Cys Leu Lys Leu Ala Arg Gln Asn
 75                  80                  85                  90

agt aat ggt ggt cag aaa aac aag cct cct gag cac gtt ata gac tgt   580
Ser Asn Gly Gly Gln Lys Asn Lys Pro Pro Glu His Val Ile Asp Cys
                 95                 100                 105

gga gac ata gtc tgg agt ctt gct ttt ggg tct tca gtt cca gaa aaa   628
Gly Asp Ile Val Trp Ser Leu Ala Phe Gly Ser Ser Val Pro Glu Lys
            110                 115                 120

cag agt cgt tgc gtt aat ata gaa tgg cat cgg ttc cga ttt gga cag   676
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Gln Ser Arg Cys Val Asn Ile Glu Trp His Arg Phe Arg Phe Gly Gln
        125                 130                 135

gat cag cta ctc ctt gcc aca gga tta aac aat ggt cgc atc aaa atc   724
Asp Gln Leu Leu Leu Ala Thr Gly Leu Asn Asn Gly Arg Ile Lys Ile
    140                 145                 150

tgg gat gta tat aca gga aaa ctc ctc ctt aat ttg gta gac cac att   772
Trp Asp Val Tyr Thr Gly Lys Leu Leu Leu Asn Leu Val Asp His Ile
155                 160                 165                 170

gaa atg gtt aga gat tta act ttt gct cca gat ggg agc tta ctc ctt   820
Glu Met Val Arg Asp Leu Thr Phe Ala Pro Asp Gly Ser Leu Leu Leu
                175                 180                 185

gta tca gct tca aga gac aaa act cta aga gtg tgg gac ctg aaa gat   868
Val Ser Ala Ser Arg Asp Lys Thr Leu Arg Val Trp Asp Leu Lys Asp
            190                 195                 200

gat gga aac atg gtg aaa gta ttg cgg gca cat cag aat tgg gtg tac   916
Asp Gly Asn Met Val Lys Val Leu Arg Ala His Gln Asn Trp Val Tyr
        205                 210                 215

agt tgt gca ttc tct ccc gac tgt tct atg ctg tgt tca gtg ggc gcc   964
Ser Cys Ala Phe Ser Pro Asp Cys Ser Met Leu Cys Ser Val Gly Ala
    220                 225                 230

agt aaa gca gtt ttc ctt tgg aat atg gat aaa tac acc atg att agg   1012
Ser Lys Ala Val Phe Leu Trp Asn Met Asp Lys Tyr Thr Met Ile Arg
235                 240                 245                 250

aag ctg gaa ggt cat cac cat gat gtt gta gct tgt gac ttt tct cct   1060
Lys Leu Glu Gly His His His Asp Val Val Ala Cys Asp Phe Ser Pro
                255                 260                 265

gat gga gca ttg cta gct act gca tcc tat gac act cgt gtg tat gtc   1108
Asp Gly Ala Leu Leu Ala Thr Ala Ser Tyr Asp Thr Arg Val Tyr Val
            270                 275                 280

tgg gat cca cac aat gga gac ctt ctg atg gag ttt ggg cac ctg ttt   1156
Trp Asp Pro His Asn Gly Asp Leu Leu Met Glu Phe Gly His Leu Phe
        285                 290                 295

ccc tcg ccc act cca ata ttt gct gga gga gca aat gac cga tgg gtg   1204
Pro Ser Pro Thr Pro Ile Phe Ala Gly Gly Ala Asn Asp Arg Trp Val
    300                 305                 310

aga gct gtg tct ttc agt cat gat gga ctg cat gtt gcc agc ctt gct   1252
Arg Ala Val Ser Phe Ser His Asp Gly Leu His Val Ala Ser Leu Ala
315                 320                 325                 330

gat gat aaa atg gtg agg ttc tgg aga atc gat gag gat tgt ccg gta   1300
Asp Asp Lys Met Val Arg Phe Trp Arg Ile Asp Glu Asp Cys Pro Val
                335                 340                 345

caa gtt gca cct ttg agc aat ggt ctt tgc tgt gcc ttt tct act gat   1348
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CS
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Gln Val Ala Pro Leu Ser Asn Gly Leu Cys Cys Ala Phe Ser Thr Asp
            350                 355                 360

ggc agt gtt tta gct gct ggg aca cat gat gga agt gtg tat ttt tgg   1396
Gly Ser Val Leu Ala Ala Gly Thr His Asp Gly Ser Val Tyr Phe Trp
        365                 370                 375

gcc act cca agg caa gtc cct agc ctt caa cat ata tgt cgc atg tca   1444
Ala Thr Pro Arg Gln Val Pro Ser Leu Gln His Ile Cys Arg Met Ser
    380                 385                 390

atc cga aga gtg atg tcc acc caa gaa gtc caa aaa ctg cct gtt cct   1492
Ile Arg Arg Val Met Ser Thr Gln Glu Val Gln Lys Leu Pro Val Pro
395                 400                 405                 410

tcc aaa ata ttg gcg ttt ctc tcc tac cgc ggt tag a ctgaagactg      1539
Ser Lys Ile Leu Ala Phe Leu Ser Tyr Arg Gly
                415                 420

cctttcctgg taggcctgcc agacagagcg ccctttacaa gacacacctc aagctttacc 1599

tcgtgccgaa tt                                                     1611


<210> 14
<211> 421
<212> PRT
<213> Mus musculus

<400> 14
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  1               5                  10                  15

Arg Thr Ile Gly Glu Leu Leu Ala Pro Ala Ala Pro Phe Asp Lys Lys
            20                  25                  30

Cys Gly Gly Glu Asn Trp Thr Val Ala Phe Ala Pro Asp Gly Ser Tyr
        35                  40                  45

Phe Ala Trp Ser Gln Gly Tyr Arg Ile Val Lys Leu Val Pro Trp Ser
    50                  55                  60

Gln Cys Arg Lys Asn Phe Leu Leu His Gly Ser Lys Asn Val Thr Asn
65                  70                  75                  80

Ser Ser Cys Leu Lys Leu Ala Arg Gln Asn Ser Asn Gly Gly Gln Lys
                85                  90                  95

Asn Lys Pro Pro Glu His Val Ile Asp Cys Gly Asp Ile Val Trp Ser
            100                 105                 110

Leu Ala Phe Gly Ser Ser Val Pro Glu Lys Gln Ser Arg Cys Val Asn
        115                 120                 125

Ile Glu Trp His Arg Phe Arg Phe Gly Gln Asp Gln Leu Leu Leu Ala
    130                 135                 140
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Thr Gly Leu Asn Asn Gly Arg Ile Lys Ile Trp Asp Val Tyr Thr Gly
145 150 155 160

Lys Leu Leu Leu Asn Leu Val Asp His Ile Glu Met Val Arg Asp Leu
165 170 175

Thr Phe Ala Pro Asp Gly Ser Leu Leu Leu Val Ser Ala Ser Arg Asp
180 185 190

Lys Thr Leu Arg Val Trp Asp Leu Lys Asp Asp Gly Asn Met Val Lys
195 200 205

Val Leu Arg Ala His Gln Asn Trp Val Tyr Ser Cys Ala Phe Ser Pro
210 215 220

Asp Cys Ser Met Leu Cys Ser Val Gly Ala Ser Lys Ala Val Phe Leu
225 230 235 240

Trp Asn Met Asp Lys Tyr Thr Met Ile Arg Lys Leu Glu Gly His His
245 250 255

His Asp Val Val Ala Cys Asp Phe Ser Pro Asp Gly Ala Leu Leu Ala
260 265 270

Thr Ala Ser Tyr Asp Thr Arg Val Tyr Val Trp Asp Pro His Asn Gly
275 280 285

Asp Leu Leu Met Glu Phe Gly His Leu Phe Pro Ser Pro Thr Pro Ile
290 295 300

Phe Ala Gly Gly Ala Asn Asp Arg Trp Val Arg Ala Val Ser Phe Ser
305 310 315 320

His Asp Gly Leu His Val Ala Ser Leu Ala Asp Asp Lys Met Val Arg
325 330 335

Phe Trp Arg Ile Asp Glu Asp Cys Pro Val Gln Val Ala Pro Leu Ser
340 345 350

Asn Gly Leu Cys Cys Ala Phe Ser Thr Asp Gly Ser Val Leu Ala Ala
355 360 365

Gly Thr His Asp Gly Ser Val Tyr Phe Trp Ala Thr Pro Arg Gln Val
370 375 380

Pro Ser Leu Gln His Ile Cys Arg Met Ser Ile Arg Arg Val Met Ser
385 390 395 400

Thr Gln Glu Val Gln Lys Leu Pro Val Pro Ser Lys Ile Leu Ala Phe
405 410 415

Leu Ser Tyr Arg Gly
420

<210> 15

<211> 783
<212> DNA
<213> Homo sapiens

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ctttggtctg aggccttcgg gagctttccc gaggcagtta gcagaagccg cagcgaccgc 120

ccccgcccgt ctcctctgtc cctgggcccg ggagacaaac ttggcgtcac gccctcagcg 180

gtcgccactc tcttctctgt tgttgggtcc gcatcgtatt cccggaatca gacggtgccc 240

catagatggc cagctttccc ccgagggtca acgagaaaga gatcgtgaga tcacgtacta 300

taggtgaact tttagctcct gcagctcctt ttgacaagaa atgtggtcgt gaaaattgga 360

ctgttgcttt tgctccagat ggttcatact ttgcttggtc acaaggacat cgcacagtaa 420

agcttgttcc gtggtcccag tgccttcaga actttctctt gcatggcacc aagaatgtta 480

ccaattcaag cagtttaaga ttgccaagac aaaatagtga tggtggtcag aaaaataagc 540

ctcgtgacat attatagact gtggagatat agtctggagt cttgcttttg ggtcatcagt 600

tccagaaaaa cagagtcgct gtgtaaatat agaatggcat cgcttcagat ttggacaaga 660

tcagctactt cttgctacag ggttgaacaa tgggcgtatc aaaatatggg atgtatatca 720

ggaaactcct ccttaacttg gtagatcata ctgaagtggt cagagattta acttttgctc 780

cag 783

<210> 16
<211> 1122
<212> DNA
<213> Homo sapiens

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tatggataaa tacaccatga tacggaaact agaaggacat caccatgatg tggtagcttg 120

tgacttttct cctgatggag cattactggc tactgcatct tatgatactc gagtatatat 180

ctgggatcca cataatggag acattctgat ggaatttggg cacctgtttc ccccacctac 240

tccaatattt gctggaggag caaatgaccg gtgggtacga tctgtatctt ttagccatga 300

tggactgcat gttgcaagcc ttgctgatga taaaatggtg aggttctgga gaattgatga 360

ggattatcca gtgcaagttg caccttgag caatggtctt tgctgtgcct tctctactga 420

tggcagtgtt ttagctgctg ggacacatga cggaagtgtg tatttttggg ccactccacg 480

gcaggtccct agcctgcaac atttatgtcg catgtcaatc cgaagagtga tgcccaccca 540

agaagttcag gagctgccga ttccttccaa gcttttggag tttctctcgt atcgtattta 600

gaagattctg ccttccctag tagtagggac tgacagaata cacttaacac aaacctcaag 660

ctttactgac ttcaattatc tgtttttaaa gacgtagaag atttatttaa tttgatatgt 720

tcttgtactg cattttgatc agttgagctt ttaaaatatt atttatagac aatagaagta 780

tttctgaaca tatcaaatat aaatttttt aaagatctaa ctgtgaaaac atacatacct 840

gtacatattt agatataagc tgctatatgt tgaatggacc cttttgcttt tctgattttt 900

agttctgaca tgtatatatt gcttcagtag agccacaata tgtatctttg ctgtaaagtg 960

caaggaaatt ttaaattctg ggacactgag ttagatggta aatactgact tacgaaagtt 1020

gaattgggtg aggcgggcaa atcacctgag gtcagcagtt tgagactagc ctggcaaaca 1080

tgatgaaacc ctgtctctac taaaaataca aaaaaaaaaa aa 1122

<210> 17
<211> 2544
<212> DNA
<213> Mus musculus

<220>
<221> UNSURE
<222> (320)
<223> Xaa is unsure

<220>
<221> UNSURE
<222> (451)
<223> Xaa is unsure

<220>
<221> CDS
<222> (423)..(2030)

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gaggacggga mgcgcgggcg gtcgcgctcg ccctgtcgct gactgcgctg ccccggccca 120

tccttgcctg gccgcaggtg ccctggatga ggccgccgcg cgtgtcccgg ccgctgagtg 180

tcccccgcgg tcgcccggcg cctgccctca agcggccgcc tctccttgcc cgggtccccg 240

ttttcccccg gcgcagtcct cctccggtgg gcgcctccgc acctcggcgc aggcggcacg 300

gccctcgggc cgggatggat ccgccgggaa gaggaagaca agccggggcg ttgagcccct 360

gcgcacggtg ccgccgcgcg tagtgggagc ttactcgcag taggctctcg ctcttctaat 420

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ca atg gat aaa gtg ggg aaa atg tgg aac aac tta aaa tac aga tgc    467
   Met Asp Lys Val Gly Lys Met Trp Asn Asn Leu Lys Tyr Arg Cys
     1               5                  10                  15

cag aat ctc ttc agc cac gag gga gga agc cgt aat gag aac gtg gag    515
Gln Asn Leu Phe Ser His Glu Gly Gly Ser Arg Asn Glu Asn Val Glu
                20                  25                  30

atg aac ccc aac aga tgt ccg tct gtc aaa gag aaa agc atc agt ctg    563
Met Asn Pro Asn Arg Cys Pro Ser Val Lys Glu Lys Ser Ile Ser Leu
            35                  40                  45

gga gag gca gct ccc cag caa gag agc agt ccc tta aga gaa aat gtt    611
Gly Glu Ala Ala Pro Gln Gln Glu Ser Ser Pro Leu Arg Glu Asn Val
        50                  55                  60

gcc tta cag ctg gga ctg agc cct tcc aag acc ttt tcc agg cgg aac    659
Ala Leu Gln Leu Gly Leu Ser Pro Ser Lys Thr Phe Ser Arg Arg Asn
    65                  70                  75

caa aac tgt gcc gca gag atc cct caa gtg gtt gaa atc agc atc gag    707
Gln Asn Cys Ala Ala Glu Ile Pro Gln Val Val Glu Ile Ser Ile Glu
80                  85                  90                  95

aaa gac agt gac tcg ggt gcc acc cca gga acg agg ctt gca cgg aga    755
Lys Asp Ser Asp Ser Gly Ala Thr Pro Gly Thr Arg Leu Ala Arg Arg
                100                 105                 110

gac tcc tac tcg cgg cac gcc ccg tgg gga gga aag aag aaa cat tcc    803
Asp Ser Tyr Ser Arg His Ala Pro Trp Gly Gly Lys Lys Lys His Ser
            115                 120                 125

tgt tcc aca aag acc cag agt tca ttg gat acc gag aaa aag ttt ggt    851
Cys Ser Thr Lys Thr Gln Ser Ser Leu Asp Thr Glu Lys Lys Phe Gly
        130                 135                 140

aga act cga agc ggc ctt cag agg cga gag cgg cgc tat gga gtc agc    899
Arg Thr Arg Ser Gly Leu Gln Arg Arg Glu Arg Arg Tyr Gly Val Ser
    145                 150                 155

tcc atg cag gac atg gac agc gtt tct agc cgc gcg gtc ggg agc cgc    947
Ser Met Gln Asp Met Asp Ser Val Ser Ser Arg Ala Val Gly Ser Arg
160                 165                 170                 175

tcc ctg agg cag agg ctc cag gac acg gtg ggt ttg tgt ttt ccc atg    995
Ser Leu Arg Gln Arg Leu Gln Asp Thr Val Gly Leu Cys Phe Pro Met
                180                 185                 190

aga act tac agc aag cag tca aag cca ctc ttt tcc aat aaa aga aaa   1043
Arg Thr Tyr Ser Lys Gln Ser Lys Pro Leu Phe Ser Asn Lys Arg Lys
            195                 200                 205

ata cat ctt tct gaa tta atg ctg gag aaa tgc cct ttt cct gct ggc   1091
Ile His Leu Ser Glu Leu Met Leu Glu Lys Cys Pro Phe Pro Ala Gly
        210                 215                 220
```

```
tcg gat tta gca caa aag tgg cat ttg att aaa cag cat acc gcc cct   1139
Ser Asp Leu Ala Gln Lys Trp His Leu Ile Lys Gln His Thr Ala Pro
    225                 230                 235

gtg agc cca cac tca aca ttt ttt gat aca ttt gat cca tca ctg gtg   1187
Val Ser Pro His Ser Thr Phe Phe Asp Thr Phe Asp Pro Ser Leu Val
240                 245                 250                 255

tct aca gaa gat gaa gaa gat agg ctt cgc gag aga aga cgg ctt agt   1235
Ser Thr Glu Asp Glu Glu Asp Arg Leu Arg Glu Arg Arg Arg Leu Ser
                260                 265                 270

atc gaa gaa ggg gtg gat ccc cct ccc aac gca caa ata cac acc ttt   1283
Ile Glu Glu Gly Val Asp Pro Pro Pro Asn Ala Gln Ile His Thr Phe
            275                 280                 285

gaa gct act gca cag gtc aac cca ttg tat aag ctg gga cca aag tta   1331
Glu Ala Thr Ala Gln Val Asn Pro Leu Tyr Lys Leu Gly Pro Lys Leu
        290                 295                 300

gct cct ggg atg aca gag ata agt gga gat ggt tct gca att cca caa   1379
Ala Pro Gly Met Thr Glu Ile Ser Gly Asp Gly Ser Ala Ile Pro Gln
    305                 310                 315

gcs aat tgt gac tca gaa gag gat tca acc acc cta tgt ctg cag tca   1427
Xaa Asn Cys Asp Ser Glu Glu Asp Ser Thr Thr Leu Cys Leu Gln Ser
320                 325                 330                 335

cgg agg cag aag cag cgc cag gtg tcc ggg gac agc cac gcg cac gtt   1475
Arg Arg Gln Lys Gln Arg Gln Val Ser Gly Asp Ser His Ala His Val
                340                 345                 350

agc aga cag gga gct tgg aaa gtt cat acg cag atc gat tac ata cac   1523
Ser Arg Gln Gly Ala Trp Lys Val His Thr Gln Ile Asp Tyr Ile His
            355                 360                 365

tgc ctc gtg cca gat ttg ctt cag atc aca ggg aat ccc tgt tac tgg   1571
Cys Leu Val Pro Asp Leu Leu Gln Ile Thr Gly Asn Pro Cys Tyr Trp
        370                 375                 380

ggc gtg atg gac cga tac gag gcc gaa gcc ctt cta gaa ggg aaa ccg   1619
Gly Val Met Asp Arg Tyr Glu Ala Glu Ala Leu Leu Glu Gly Lys Pro
    385                 390                 395

gaa ggc acg ttc ttg ctc agg gac tct gca cag gag gac tac ctc ttc   1667
Glu Gly Thr Phe Leu Leu Arg Asp Ser Ala Gln Glu Asp Tyr Leu Phe
400                 405                 410                 415

tct gtg agc ttc cgc cgc tac aac agg tct ctg cac gcc cgg atc gag   1715
Ser Val Ser Phe Arg Arg Tyr Asn Arg Ser Leu His Ala Arg Ile Glu
                420                 425                 430

cag tgg aac cac aac ttc agc ttc gat gcc cat gac ccc tgc gtg ttt   1763
Gln Trp Asn His Asn Phe Ser Phe Asp Ala His Asp Pro Cys Val Phe
            435                 440                 445
```

```
cac tcc tcc acw gtc acg ggg ctt ctc gaa cac tat aaa gac ccc agc   1811
His Ser Ser Xaa Val Thr Gly Leu Leu Glu His Tyr Lys Asp Pro Ser
        450                 455                 460

tct tgc atg ttt ttt gaa ccg ttg cta acg ata tca ctg aat aga act   1859
Ser Cys Met Phe Phe Glu Pro Leu Leu Thr Ile Ser Leu Asn Arg Thr
    465                 470                 475

ttc cct ttc agc ctg cag tat atc tgc cgc gca gtg atc tgc aga tgc   1907
Phe Pro Phe Ser Leu Gln Tyr Ile Cys Arg Ala Val Ile Cys Arg Cys
480                 485                 490                 495

act acg tat gat ggg att gac ggg ctc ccg cta ccg tcg atg tta cag   1955
Thr Thr Tyr Asp Gly Ile Asp Gly Leu Pro Leu Pro Ser Met Leu Gln
                500                 505                 510

gat ttt tta aaa gag tat cat tat aaa caa aaa gtt agg gtt cgc tgg   2003
Asp Phe Leu Lys Glu Tyr His Tyr Lys Gln Lys Val Arg Val Arg Trp
            515                 520                 525

tta gaa cga gar cca gtc aaa gca aag taactcctgt ccccaaaggg         2050
Leu Glu Arg Xaa Pro Val Lys Ala Lys
        530                 535

cactaactaa gtctgctcct cccgtgcatc mgaactgcac ccataggrag gcagtcagct 2110

gctaggattt cccacccaga atgggagctt agtcattagc ctctgcccta tggggtccgc 2170

tgttcctcag acaaaggtgc ctagggacag caagatggct tgcaggtgtt cggtgggctg 2230

tgacaactga gggaggcaac tctggggcat ttgctatgaa gaattctatt tcttaccgaa 2290

gaacaaatta ttaatattgg atgggtattt caatagtgtg actaatgttt gaaattattt 2350

tttctaagaa tttttctata accttcagaa aaagtagtga tgtttgtagt tactataaat 2410

caagctttga aagttcaaaa caaacaagtt aaataaaaga ctaccttcct tttagagaaa 2470

acaaatgcaa gttttcccag ccacaggcat tgtgcactgt taatgttagc ttgttatcag 2530

ctcctttctc ctcc                                                  2544
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<212> PRT
<213> Mus musculus

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<221> UNSURE
<222> (320)
<223> Xaa is unsure

<220>
<221> UNSURE
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<223> Xaa is unsure

<400> 18

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  1               5                  10                  15

Asn Leu Phe Ser His Glu Gly Gly Ser Arg Asn Glu Asn Val Glu Met
             20                  25                  30

Asn Pro Asn Arg Cys Pro Ser Val Lys Glu Lys Ser Ile Ser Leu Gly
         35                  40                  45

Glu Ala Ala Pro Gln Gln Glu Ser Ser Pro Leu Arg Glu Asn Val Ala
     50                  55                  60

Leu Gln Leu Gly Leu Ser Pro Ser Lys Thr Phe Ser Arg Arg Asn Gln
 65                  70                  75                  80

Asn Cys Ala Ala Glu Ile Pro Gln Val Val Glu Ile Ser Ile Glu Lys
                 85                  90                  95

Asp Ser Asp Ser Gly Ala Thr Pro Gly Thr Arg Leu Ala Arg Arg Asp
            100                 105                 110

Ser Tyr Ser Arg His Ala Pro Trp Gly Gly Lys Lys Lys His Ser Cys
        115                 120                 125

Ser Thr Lys Thr Gln Ser Ser Leu Asp Thr Glu Lys Lys Phe Gly Arg
    130                 135                 140

Thr Arg Ser Gly Leu Gln Arg Arg Glu Arg Arg Tyr Gly Val Ser Ser
145                 150                 155                 160

Met Gln Asp Met Asp Ser Val Ser Ser Arg Ala Val Gly Ser Arg Ser
                165                 170                 175

Leu Arg Gln Arg Leu Gln Asp Thr Val Gly Leu Cys Phe Pro Met Arg
            180                 185                 190

Thr Tyr Ser Lys Gln Ser Lys Pro Leu Phe Ser Asn Lys Arg Lys Ile
        195                 200                 205

His Leu Ser Glu Leu Met Leu Glu Lys Cys Pro Phe Pro Ala Gly Ser
    210                 215                 220

Asp Leu Ala Gln Lys Trp His Leu Ile Lys Gln His Thr Ala Pro Val
225                 230                 235                 240

Ser Pro His Ser Thr Phe Phe Asp Thr Phe Asp Pro Ser Leu Val Ser
                245                 250                 255
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Thr Glu Asp Glu Glu Asp Arg Leu Arg Glu Arg Arg Arg Leu Ser Ile
260 265 270

Glu Glu Gly Val Asp Pro Pro Pro Asn Ala Gln Ile His Thr Phe Glu
275 280 285

Ala Thr Ala Gln Val Asn Pro Leu Tyr Lys Leu Gly Pro Lys Leu Ala
290 295 300

Pro Gly Met Thr Glu Ile Ser Gly Asp Gly Ser Ala Ile Pro Gln Xaa
305 310 315 320

Asn Cys Asp Ser Glu Glu Asp Ser Thr Thr Leu Cys Leu Gln Ser Arg
325 330 335

Arg Gln Lys Gln Arg Gln Val Ser Gly Asp Ser His Ala His Val Ser
340 345 350

Arg Gln Gly Ala Trp Lys Val His Thr Gln Ile Asp Tyr Ile His Cys
355 360 365

Leu Val Pro Asp Leu Leu Gln Ile Thr Gly Asn Pro Cys Tyr Trp Gly
370 375 380

Val Met Asp Arg Tyr Glu Ala Glu Ala Leu Leu Glu Gly Lys Pro Glu
385 390 395 400

Gly Thr Phe Leu Leu Arg Asp Ser Ala Gln Glu Asp Tyr Leu Phe Ser
405 410 415

Val Ser Phe Arg Arg Tyr Asn Arg Ser Leu His Ala Arg Ile Glu Gln
420 425 430

Trp Asn His Asn Phe Ser Phe Asp Ala His Asp Pro Cys Val Phe His
435 440 445

Ser Ser Xaa Val Thr Gly Leu Leu Glu His Tyr Lys Asp Pro Ser Ser
450 455 460

Cys Met Phe Phe Glu Pro Leu Leu Thr Ile Ser Leu Asn Arg Thr Phe
465 470 475 480

Pro Phe Ser Leu Gln Tyr Ile Cys Arg Ala Val Ile Cys Arg Cys Thr
485 490 495

Thr Tyr Asp Gly Ile Asp Gly Leu Pro Leu Pro Ser Met Leu Gln Asp
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Phe Leu Lys Glu Tyr His Tyr Lys Gln Lys Val Arg Val Arg Trp Leu
515 520 525

Glu Arg Xaa Pro Val Lys Ala Lys
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<211> 1221
<212> DNA
<213> Homo sapiens

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gaagaagggg ttgatccccc tcccaatgca caaatacata catttgaagc tactgcacag 180

gttaatccat tattaaactg ggaccaaaat tagctcctgg aatgactgaa ataagtgggg 240

acagttctgc aattccacaa gctaattgtg actcggaaga ggatacaacc accctgtgtt 300

gcagtcacgg aggcagaagc agcgtcagat atctggagac agccataccc atgttagcag 360

acagggagct tggaaagtcc acacacagat tgattacata cactgcttcg tgcctgattt 420

gcttcaaatt acagggaatc cctgttactg gggagtgatg gaccgttatg aagcagaagc 480

ccttctcgaa gggaaacctg aaggcacgtt tttgctcagg gactctgcgc aagaggacta 540

cttcttctct gtgagcttcc gccgatacaa cagatccctg catgcccgaa ttgagcagtg 600

gaatcacaac tttagtttcg acgcccatga cccgtgtgta tttcactcct ccactgtaac 660

gggactttta gaacattata aagatcccag ttcgtgcatg ttttttgaac cattgcttac 720

tatatcacta aataggactt tccctttag cctgcagtat atctgtcgcg cggtaatctg 780

caggtgcact acgtatgatg gaattgatgg gctccctcta ccctcaatgt tacaggattt 840

tttaaaagag tatcattata aacaaaaagt tagagttcgc tggttggaac gagaaccagt 900

caaggcaaag taaactctcc ggtccccaaa gggtgttaac taggtccgct ttcatgtgca 960

tcagacagta cacctatagc aagcacacgt agcagtgtta ggctttttca tacagtatgt 1020

aagcttagtg ttagtatctg tcagatgcta cctgctgtta cttattcaga taaacatggt 1080

gcctattgga acaatagcgg atagagctac aggtgttcag taagactaca aaaacatttt 1140

gcctatttcg ctaacagttt ggtttttaat ggctgtggta tttgagtgag gcaactctgg 1200

ggcatttgtt atgaagaaat g 1221

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gcccacggcc ctgggggctg aggcgcccgc cgcctggggc gggccgcgcg tcctc atg 118
Met
1

gag gcc gga gag gag ccg ctg ctg ctg gct gaa ctc aag cct ggg cgc 166
Glu Ala Gly Glu Glu Pro Leu Leu Leu Ala Glu Leu Lys Pro Gly Arg
5 10 15

ccc cac cag ttc gac tgg aag tca agc tgc gag acc tgg agc gtg gcc 214
Pro His Gln Phe Asp Trp Lys Ser Ser Cys Glu Thr Trp Ser Val Ala
20 25 30

ttc tcg cca gac ggt tcc tgg ttc gcc tgg tct caa gga cac tgc gtg 262
Phe Ser Pro Asp Gly Ser Trp Phe Ala Trp Ser Gln Gly His Cys Val
35 40 45

gtc aag ctg gtc ccc tgg ccc tta gag gaa cag ttc atc cct aaa gga 310
Val Lys Leu Val Pro Trp Pro Leu Glu Glu Gln Phe Ile Pro Lys Gly
50 55 60 65

ttc gaa gcc aag agc cga agc agc aag aat gac cca aaa gga cgg ggc 358
Phe Glu Ala Lys Ser Arg Ser Ser Lys Asn Asp Pro Lys Gly Arg Gly
70 75 80

agt ctg aag gag aag acg ctg gac tgt ggc cag att gtg tgg ggg ctg 406
Ser Leu Lys Glu Lys Thr Leu Asp Cys Gly Gln Ile Val Trp Gly Leu
85 90 95

gcc ttc agc ccg tgg ccc tct cca ccc agc agg aaa ctc tgg gca cgt 454
Ala Phe Ser Pro Trp Pro Ser Pro Pro Ser Arg Lys Leu Trp Ala Arg
100 105 110

cac cat ccc cag gcg cct gat gtt tct tgc ctg atc ctg gcc aca ggt 502
His His Pro Gln Ala Pro Asp Val Ser Cys Leu Ile Leu Ala Thr Gly
115 120 125

ctc aac gat ggg cag atc aag att tgg gag gta cag aca ggc ctc ctg 550
Leu Asn Asp Gly Gln Ile Lys Ile Trp Glu Val Gln Thr Gly Leu Leu
130 135 140 145

ctt ctg aat ctt tct ggc cac caa gac gtc gtg aga gat ctg agc ttc 598
Leu Leu Asn Leu Ser Gly His Gln Asp Val Val Arg Asp Leu Ser Phe
150 155 160

acg ccc agc ggc agt ttg att ttg gtc tct gca tcc cgg gat aag aca 646
Thr Pro Ser Gly Ser Leu Ile Leu Val Ser Ala Ser Arg Asp Lys Thr
165 170 175

ctt cga att tgg gac ctg aat aaa cac ggt aag cag atc cag gtg tta 694
Leu Arg Ile Trp Asp Leu Asn Lys His Gly Lys Gln Ile Gln Val Leu
180 185 190

tcc ggc cat ctg cag tgg gtt tac tgc tgc tcc atc tcc cct gac tgt 742

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Ser Gly His Leu Gln Trp Val Tyr Cys Cys Ser Ile Ser Pro Asp Cys
    195                 200                 205

agc atg ctg tgc tct gca gct ggg gag aag tcg gtc ttt ctg tgg agc   790
Ser Met Leu Cys Ser Ala Ala Gly Glu Lys Ser Val Phe Leu Trp Ser
210                 215                 220                 225

atg cgg tcc tac aca cta atc cgg aaa cta gaa ggc cac caa agc agt   838
Met Arg Ser Tyr Thr Leu Ile Arg Lys Leu Glu Gly His Gln Ser Ser
                230                 235                 240

gtt gtc tcc tgt gat ttc tct cct gat tca gcc ttg ctt gtc aca gct   886
Val Val Ser Cys Asp Phe Ser Pro Asp Ser Ala Leu Leu Val Thr Ala
            245                 250                 255

tcg tat gac acc agt gtg att atg tgg gac ccc tac acc ggc gcg agg   934
Ser Tyr Asp Thr Ser Val Ile Met Trp Asp Pro Tyr Thr Gly Ala Arg
        260                 265                 270

ctg agg tca ctt cat cac aca caa ctt gaa ccc acc atg gat gac agt   982
Leu Arg Ser Leu His His Thr Gln Leu Glu Pro Thr Met Asp Asp Ser
    275                 280                 285

gac gtc cac atg agc tcc ctg agg tcc gtg tgc ttc tca cct gaa ggc  1030
Asp Val His Met Ser Ser Leu Arg Ser Val Cys Phe Ser Pro Glu Gly
290                 295                 300                 305

ttg tat ctc gct acg gtg gca gat gac agg ctg ctc agg atc tgg gct  1078
Leu Tyr Leu Ala Thr Val Ala Asp Asp Arg Leu Leu Arg Ile Trp Ala
                310                 315                 320

ctg gaa ctg aag gct ccg gtt gcc ttt gct ccg atg acc aat ggt ctt  1126
Leu Glu Leu Lys Ala Pro Val Ala Phe Ala Pro Met Thr Asn Gly Leu
            325                 330                 335

tgc tgc acg ttc ttc cca cac ggt gga att att gcc aca ggg acg aga  1174
Cys Cys Thr Phe Phe Pro His Gly Gly Ile Ile Ala Thr Gly Thr Arg
        340                 345                 350

gat ggc cat gtc cag ttc tgg aca gct ccc cgg gtc ctg tcc tca ctg  1222
Asp Gly His Val Gln Phe Trp Thr Ala Pro Arg Val Leu Ser Ser Leu
    355                 360                 365

aag cac tta tgc agg aaa gcc ctc cga agt ttc ctg aca acg tat caa  1270
Lys His Leu Cys Arg Lys Ala Leu Arg Ser Phe Leu Thr Thr Tyr Gln
370                 375                 380                 385

gtc cta gca ctg cca atc ccc aag aag atg aaa gag ttc ctc aca tac  1318
Val Leu Ala Leu Pro Ile Pro Lys Lys Met Lys Glu Phe Leu Thr Tyr
                390                 395                 400

agg act ttc tagcagtgcc ggctccccca cctcctgcag cagcagcagt          1367
Arg Thr Phe

acaagggact ggctaggatg gagtcaggca gctcacactg gaccagtgtg gaccttcctt 1427
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cctcccatgg catgtgcaag taggtctgcg tgaccccact tctgtggtgc cggccttacc 1487

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tattttctca gcacatagta aggtacaact gtgttttctc aattgtctcg aaaaaacaga 1967

gttcttaagt ggcccagttg tggagccaag tctaagtcgt gtggagtcag tgctgacatc 2027

actggcttgt gctgtctgtc acatgtgttt gtctctgctg cttgacctca tgggatgtac 2087

cctccagttc aactgcccaa aacagacagc cccttccaag caccgttctt tgacagcggt 2147

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aattatttta aaagaaactc aacatcttat tctttggcct ttcttaattg atgctttatg 2267

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<211> 404
<212> PRT
<213> Mus musculus

<400> 21

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Arg Pro His Gln Phe Asp Trp Lys Ser Ser Cys Glu Thr Trp Ser Val
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Ala Phe Ser Pro Asp Gly Ser Trp Phe Ala Trp Ser Gln Gly His Cys
         35                  40                  45

Val Val Lys Leu Val Pro Trp Pro Leu Glu Glu Gln Phe Ile Pro Lys
     50                  55                  60

Gly Phe Glu Ala Lys Ser Arg Ser Ser Lys Asn Asp Pro Lys Gly Arg
 65                  70                  75                  80

Gly Ser Leu Lys Glu Lys Thr Leu Asp Cys Gly Gln Ile Val Trp Gly
                 85                  90                  95
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Leu Ala Phe Ser Pro Trp Pro Ser Pro Pro Ser Arg Lys Leu Trp Ala
100 105 110

Arg His His Pro Gln Ala Pro Asp Val Ser Cys Leu Ile Leu Ala Thr
115 120 125

Gly Leu Asn Asp Gly Gln Ile Lys Ile Trp Glu Val Gln Thr Gly Leu
130 135 140

Leu Leu Leu Asn Leu Ser Gly His Gln Asp Val Val Arg Asp Leu Ser
145 150 155 160

Phe Thr Pro Ser Gly Ser Leu Ile Leu Val Ser Ala Ser Arg Asp Lys
165 170 175

Thr Leu Arg Ile Trp Asp Leu Asn Lys His Gly Lys Gln Ile Gln Val
180 185 190

Leu Ser Gly His Leu Gln Trp Val Tyr Cys Cys Ser Ile Ser Pro Asp
195 200 205

Cys Ser Met Leu Cys Ser Ala Ala Gly Glu Lys Ser Val Phe Leu Trp
210 215 220

Ser Met Arg Ser Tyr Thr Leu Ile Arg Lys Leu Glu Gly His Gln Ser
225 230 235 240

Ser Val Val Ser Cys Asp Phe Ser Pro Asp Ser Ala Leu Leu Val Thr
245 250 255

Ala Ser Tyr Asp Thr Ser Val Ile Met Trp Asp Pro Tyr Thr Gly Ala
260 265 270

Arg Leu Arg Ser Leu His His Thr Gln Leu Glu Pro Thr Met Asp Asp
275 280 285

Ser Asp Val His Met Ser Ser Leu Arg Ser Val Cys Phe Ser Pro Glu
290 295 300

Gly Leu Tyr Leu Ala Thr Val Ala Asp Asp Arg Leu Leu Arg Ile Trp
305 310 315 320

Ala Leu Glu Leu Lys Ala Pro Val Ala Phe Ala Pro Met Thr Asn Gly
325 330 335

Leu Cys Cys Thr Phe Phe Pro His Gly Gly Ile Ile Ala Thr Gly Thr
340 345 350

Arg Asp Gly His Val Gln Phe Trp Thr Ala Pro Arg Val Leu Ser Ser
355 360 365

Leu Lys His Leu Cys Arg Lys Ala Leu Arg Ser Phe Leu Thr Thr Tyr
370 375 380

Gln Val Leu Ala Leu Pro Ile Pro Lys Lys Met Lys Glu Phe Leu Thr

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Tyr Arg Thr Phe

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<211> 1246
<212> DNA
<213> Homo sapiens

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agacgctgga ctgtggtcag attgtctggg ggctggcctt cagcctgtgc tttccccacc 180

cagcaggaag ctctgggcac gccaccaccc ccaagtgccc gatgtctctt gcctggttct 240

tgctacggga ctcaacgatg ggcagatcaa gatctgggag gtgcagacag ggctcctgct 300

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cggtaaacag attcaagtgt tatcgggcca cctgcagtgg gtttactgct gttccatctc 480

cccagactgc agcatgctgt gctctgcagc tggagagaag tcggtctttc tatggagcat 540

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gagtcattgc cacagggaca agagatggcc acgtccagtt ctggacagct cctagggtcc 960

tgtcctcact gaagcactta tgccggaaag cccttcgaag tttcctaaca acttaccaag 1020

tcctagcact gccaatcccc aagaaaatga aagagttcct cacatacagg actttttaag 1080

caacaccaca tcttgtgctt ctttgtagca gggtaaatcg tcctgtcaaa gggagttgct 1140

ggaataatgg gccaaacatc tggtcttgca ttgaaatagc atttctttgg gattgtgaat 1200

agaatgtagc aaaaccagat tccagtgtac tagtcatgga tttttc 1246

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<211> 422

<212> DNA
<213> Homo sapiens

<400> 23
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tccagacact attttttttt ttttttttta acaatggtgt gcatgtgcag gaaatgacaa 240

atttgtatgt cagattatac aaggatgtat tcttaaaccg catgactatt cagatggcta 300

ctgagttatc agtggccatt tattagcatc atatttattt gtattttctc aacagatgtt 360

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aa 422

<210> 24
<211> 2019
<212> DNA
<213> Mus musculus

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<222> (1981)
<223> N is unsure

<220>
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<222> (1992)
<223> N is unsure

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<221> UNSURE
<222> (2010)
<223> N is unsure

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ggagcagttc tgtgaccatc cactggagca ctgtgacgat acaagactcc atgatgcagc 180

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catcaatgag aagtctgtct ggtgctgcgg ctggcttccc tgcacaccac tgaggatcgc 300

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aagggttttc tgatgtctta ccctggggat cttcagacag tggttacctt taggagaccc 1740

acctggaact aaccattaag tgactgccca cattcagatc agggaccatc ttaatagtac 1800

tcactgccag tcctcacaag agaagatgac acgggtgctc tcttcagaca ctcccataca 1860

ggaagttgga aaatgtcttg gtcacctggg ttgttcccag gctacaactt cttggtgttc 1920

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ncccaatgcc cntttgtktn ggttgcttcc ctaaaaktt 2019

<210> 25

<211> 350
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<213> Mus musculus

<220>
<221> UNSURE
<222> (167)
<223> Xaa is unsure

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35 40 45

Glu His Cys Asp Asp Thr Arg Leu His Asp Ala Ala Tyr Val Gly Asp
50 55 60

Leu Gln Thr Leu Arg Asn Leu Leu Gln Glu Glu Ser Tyr Arg Ser Arg
65 70 75 80

Ile Asn Glu Lys Ser Val Trp Cys Cys Gly Trp Leu Pro Cys Thr Pro
85 90 95

Leu Arg Ile Ala Ala Thr Ala Gly His Gly Asn Cys Val Asp Phe Leu
100 105 110

Ile Arg Lys Gly Ala Glu Val Asp Leu Val Asp Val Lys Gly Gln Thr
115 120 125

Ala Leu Tyr Val Ala Val Val Asn Gly His Leu Glu Ser Thr Glu Ile
130 135 140

Leu Leu Glu Ala Gly Ala Asp Pro Asn Gly Ser Arg His His Arg Ser
145 150 155 160

Thr Pro Val Tyr His Ala Xaa Arg Val Gly Arg Asp Asp Ile Leu Lys
165 170 175

Ala Leu Ile Arg Tyr Gly Ala Asp Val Asp Val Asn His His Leu Asn
180 185 190

Ser Asp Thr Arg Pro Pro Phe Ser Arg Arg Leu Thr Ser Leu Val Val
195 200 205

Cys Pro Leu Tyr Ile Ser Ala Ala Tyr His Asn Leu Gln Cys Phe Arg
210 215 220

Leu Leu Leu Gln Ala Gly Ala Asn Pro Asp Phe Asn Cys Asn Gly Pro
225 230 235 240

Val Asn Thr Gln Glu Phe Tyr Arg Gly Ser Pro Gly Cys Val Met Asp

245 250 255

Ala Val Leu Arg His Gly Cys Glu Ala Ala Phe Val Ser Leu Leu Val
260 265 270

Glu Phe Gly Ala Asn Leu Asn Leu Val Lys Trp Glu Ser Leu Gly Pro
275 280 285

Glu Ala Arg Gly Arg Arg Lys Met Asp Pro Glu Ala Leu Gln Val Phe
290 295 300

Lys Glu Ala Arg Ser Ile Pro Arg Thr Leu Leu Ser Leu Cys Arg Val
305 310 315 320

Ala Val Arg Arg Ala Leu Gly Lys Tyr Arg Leu His Leu Val Pro Ser
325 330 335

Leu Pro Leu Pro Asp Pro Ile Lys Lys Phe Leu Leu Tyr Glu
340 345 350

<210> 26
<211> 419
<212> DNA
<213> Homo sapiens

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tggtgaacgg gcacctagag agtacccaga tccttctcga agctggcgcg gaccccaac 419

<210> 27
<211> 595
<212> DNA
<213> Homo sapiens

<400> 27
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tcatctgatt ccttcgctgc ctctgccaga ccccataaag aagtttctac tccatgagta 180

gactccaagt gctgcggttg attccagtga gggagaaagt gatctgcagg gaggtggaca 240

ccgagccctg agtgctgtgc tgctgctggt ctcctgatgg ctgttgctgc agaagatgtc 300

ctcgtagact gtcattgctc ctcaggtgcc tgggccgctg aacagtcctt gggtcattgt 360

cagctgagag gcttatacta aagttattat tgtttttccc aagttctctg ttctggattt 420

tcagttgcat attaatgtaa cgggccatgg ggtatgtaca tgtaggggct gaggttggag 480

gcctactaat ttcctgtagg gaagactccc agcacttctg gaactgtgct tctctttatt 540

tttctacttc tcaatttgat ggttcgatta aagccttcta gtatctcaat gaaaa 595

<210> 28
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<213> Mus musculus

<220>
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<222> (4)..(396)

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<222> (551)
<223> n is unsure

<220>
<221> UNSURE
<222> (651)
<223> n is unsure

<400> 28

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    Met Ser Ala Ile Leu Lys Val Gly His His Cys Trp Leu Pro Val
     1               5                  10                  15

aca tcc gct gtc aat ccc caa agg atg ctg agg cca cca cca acc gct   96
Thr Ser Ala Val Asn Pro Gln Arg Met Leu Arg Pro Pro Pro Thr Ala
                20                  25                  30

gtt ttc aac tgt gcc gct tgc tgc tgt ctg tgg ggg cag atg ctg atg   144
Val Phe Asn Cys Ala Ala Cys Cys Cys Leu Trp Gly Gln Met Leu Met
            35                  40                  45

aat aca tac cgt gta gtt cag ctt cct gag gag gcc aag ggc ttg gtg   192
Asn Thr Tyr Arg Val Val Gln Leu Pro Glu Glu Ala Lys Gly Leu Val
        50                  55                  60

cca cca gag att cta cag aag tac cat gga ttc tac tct tcc ctc ttt   240
Pro Pro Glu Ile Leu Gln Lys Tyr His Gly Phe Tyr Ser Ser Leu Phe
    65                  70                  75

gcc ttg gtg agg cag ccc agg tcg ctg cag cat ctc tgc cgt tgt gcg   288
Ala Leu Val Arg Gln Pro Arg Ser Leu Gln His Leu Cys Arg Cys Ala
80                  85                  90                  95

ctc cgc agt cac ctg gag ggc tgt ctg ccc cat gca cta ccg cgc ctt   336
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Leu Arg Ser His Leu Glu Gly Cys Leu Pro His Ala Leu Pro Arg Leu
                100                 105                 110

ccc ctg cca ccg cgc atg ctc cgc ttt ctg cag ctg gac ttt gag gat   384
Pro Leu Pro Pro Arg Met Leu Arg Phe Leu Gln Leu Asp Phe Glu Asp
            115                 120                 125

ctg ctc tac taggcttgct gccctgtgaa caaagcagac cccaccccca           433
Leu Leu Tyr
        130

ccccaagggc atctctcagc aatgaatgat gcaaggcggt ctgtcttcaa gtcaggagtg 493

gacgccttga tccacacttg agagaagagg ccagatcagc accyggctgg tagtgatngc 553

agagggcacc tgtgcagatc tgtgtgcgca ctggaaatct ctaggctgaa ggcyagagca 613

aatggtgcar gtgttagtcc ttgggangag agacagangg tgagaaagca agacagaggt 673

gagagtgcac atgtcaagtg gtagattgcc ttaaaagaaa gctaaaaaaa gaaaaagatt 733

cgggcgaact tctttagggg taatgctgca gcgtgttaaa ctgactgacc agcgtccata 793

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<210> 29
<211> 130
<212> PRT
<213> Mus musculus

<400> 29
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  1               5                  10                  15

Ser Ala Val Asn Pro Gln Arg Met Leu Arg Pro Pro Pro Thr Ala Val
             20                  25                  30

Phe Asn Cys Ala Ala Cys Cys Cys Leu Trp Gly Gln Met Leu Met Asn
         35                  40                  45

Thr Tyr Arg Val Val Gln Leu Pro Glu Glu Ala Lys Gly Leu Val Pro
     50                  55                  60

Pro Glu Ile Leu Gln Lys Tyr His Gly Phe Tyr Ser Ser Leu Phe Ala
 65                  70                  75                  80

Leu Val Arg Gln Pro Arg Ser Leu Gln His Leu Cys Arg Cys Ala Leu
                 85                  90                  95

Arg Ser His Leu Glu Gly Cys Leu Pro His Ala Leu Pro Arg Leu Pro
            100                 105                 110

Leu Pro Pro Arg Met Leu Arg Phe Leu Gln Leu Asp Phe Glu Asp Leu
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115 120 125

Leu Tyr
130

<210> 30
<211> 436
<212> DNA
<213> Mus musculus

<400> 30
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acatgactgt cgtcttcgga gaaggcacca ctcgcccccg gcaggtacgg ctgacacctc 180

catgggagaa gacgtatcca ggcagcagct gcgcggccct tcaagagggc acatcccgtc 240

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gtgttcctcc aggtggaggc tcaggtcccc gggtgagctg gggctgcagc gggactcagg 360

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cacaccgttg actggt 436

<210> 31
<211> 2180
<212> DNA
<213> Homo sapiens

<400> 31
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tgaaaattag ttgacaatca agttcaccca agaaaatgtt gactaagcta aagaaatcac 180

agataaaaca ttttaccaaa aggataggta acacacaaaa aaatgctatc acaggaagct 240

atgatcatct aatatttctt taataataat tctagttcca taggttttca tgttatgcca 300

atttgtaccc gagtttaatt acagaaaagg caacaatttc taaattggtg gtatacattt 360

ctttacaatt ttttaatgta aggccattta ttaaaataga caaactagaa gatgaaaacg 420

aaggcaacag aaaaattcaa cttttcacaa ccaaaagaat tagcacaacc ttagaaataa 480

tttagaaaaa agtgttgtta aaagatatgt tgcagatctc cgttccatta cccaagatta 540

tgtcaattca cgattctaaa taaatctttt taaagtaaga gattaaaaac tcatcttcag 600

tgtatatgta aattccgtgg ttttatcaca caggtatgtt tattcaacac tgctttggaa 660

atggaccatt taaaaggaca tggcaatttc cattctgtta agtttcattc aacctttact 720

taggggttga ttaccacatg aaatgtgctt ttaatgcata aaaatcacag tggattagcc 780

agcaaaaggg actgggcggg gggggcattg aggagaattt gataattcac attgtgatta 840

ttctgcacat tgatgaaaca taattcacac ctctaaaacc tcaagacttc ccttttttaa 900

agaaccaaaa taaacccaag acaccttgct gacacttccc cacccctaaa caaactgatg 960

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caatctttca gtagtgcttc tcctgtaaat aatccttcat tttgtttggc aaaggcagtt 1140

tctgaattaa gtctattctg gtatactgac gtataacaaa acgacacagg tactgcaacg 1200

agcgcaccta tgaaccccgg aacactggtt ggcaagttct gacggaagtg cagattccag 1260

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catttgagtg ctcaattcta gtgtgaagtg ttttaccatg ggagcgaaag tcacagctta 1440

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cagacaatag ctccgtgatc cttccaaagg atacatcccc tcatctaaag gcacagtata 2040

ctgaatgtag tcctgaggca taagtccaat aacgacaggc acatgttcat ccaggtgaag 2100

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<210> 32
<211> 2649
<212> DNA

<213> Mus musculus

<400> 32

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gctgcctact atggccagct gggctgcctg aaagtcctgc agcaagccta cccagggacc 480

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tgtccgacgt aattgacccc gtgttttgtc actttcgagt gttccgacta ttgggggggct 2520

tttggttgtc cccaaaattg tgggtggtgt gcggacgcca cgagaagtgg ttcatgggcg 2580

ataatcatta ctggagaatg tagagcggcg gttttacgaa taaatatttt ttaagccgcc 2640

ttcccaaaa 2649

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<211> 495
<212> DNA
<213> Homo sapiens

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caaggatgcg atgaagaggc cttgaagacc atgatcaagg aagggaagaa tctcgcagag 180

cccaacaagg agggctggct gccgctgcac gaggccgcat actatggcca ggtgggctgc 240

ctgaaagtcc tgcagcgagc gtacccaggg accatcgacc agcgcaccct gcaggaggaa 300

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gcaggggcag agcgggacat ctccaacaaa tcccgagaga accgctctac aaagcctgtg 420

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gctgcaaccg ggctg 495

<210> 34
<211> 709
<212> DNA
<213> Homo sapiens

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gccattggga aataccgtat aaaactccta gacaccttgc cgctcccagg caggctgatt 180

agatacctga aatacgagaa cacccagtaa ctggggccac ggggagagag gagtagcccc 240

tcagactctt cttactaagt ctcaggacgt cggtgttccc aactccaagg ggacctggtg 300

acagacgagg ctgcaggctg cctccctctc agcctggaca gctaccagga tctcactggg 360

tctcagggcc cagagctttg gccagagcag agaacagaat gtgtcaagga gaagaatcat 420

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tccctgtgcc cctccacttg ttctggaaaa ctcaccactt gacttcagag ctttctctcc 600

aaagactaag atgaagacgt ggcccaaggt agggggtagg gggagcctgg gtcttggagg 660

gctttgttaa gtattaatat aataaatgtt acacatgtga aaaaaaaaa 709

<210> 35
<211> 848
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(624)

<400> 35
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Leu Glu Lys Cys Gly Trp Tyr Trp Gly Pro Met Asn Trp Glu Asp Ala
1 5 10 15

gag atg aag ctg aaa ggg aaa cca gat ggt tct ttc ctg gta cga gac 96
Glu Met Lys Leu Lys Gly Lys Pro Asp Gly Ser Phe Leu Val Arg Asp
20 25 30

agt tct gat cct cgt tac atc ctg agc ctc agt ttc cga tca cag ggt 144
Ser Ser Asp Pro Arg Tyr Ile Leu Ser Leu Ser Phe Arg Ser Gln Gly

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         35                  40                  45

atc acc cac cac act aga atg gag cac tac aga gga acc ttc agc ctg   192
Ile Thr His His Thr Arg Met Glu His Tyr Arg Gly Thr Phe Ser Leu
     50                  55                  60

tgg tgt cat ccc aag ttt gag gac cgc tgt caa tct gtt gta gag ttt   240
Trp Cys His Pro Lys Phe Glu Asp Arg Cys Gln Ser Val Val Glu Phe
 65                  70                  75                  80

att aag aga gcc att atg cac tcc aag aat gga aag ttt ctc tat ttc   288
Ile Lys Arg Ala Ile Met His Ser Lys Asn Gly Lys Phe Leu Tyr Phe
                 85                  90                  95

tta aga tcc agg gtt cca gga ctg cca cca act cct gtc cag ctg ctc   336
Leu Arg Ser Arg Val Pro Gly Leu Pro Pro Thr Pro Val Gln Leu Leu
            100                 105                 110

tat cca gtg tcc cga ttc agc aat gtc aaa tcc ctc cag cac ctt tgc   384
Tyr Pro Val Ser Arg Phe Ser Asn Val Lys Ser Leu Gln His Leu Cys
        115                 120                 125

aga ttc cgg ata cga cag ctc gtc agg ata gat cac atc cca gat ctc   432
Arg Phe Arg Ile Arg Gln Leu Val Arg Ile Asp His Ile Pro Asp Leu
    130                 135                 140

cca ctg cct aaa cct ctg atc tct tat atc cga aag ttc tac tac tat   480
Pro Leu Pro Lys Pro Leu Ile Ser Tyr Ile Arg Lys Phe Tyr Tyr Tyr
145                 150                 155                 160

gat cct cag gaa gag gta tac ctg tct cta aag gaa gcg cag cgt cag   528
Asp Pro Gln Glu Glu Val Tyr Leu Ser Leu Lys Glu Ala Gln Arg Gln
                165                 170                 175

ttt cca aac aga agc aag agg tgg aac cct cca cgt agc gag ggg ctc   576
Phe Pro Asn Arg Ser Lys Arg Trp Asn Pro Pro Arg Ser Glu Gly Leu
            180                 185                 190

cct gct ggt cac cac caa ggg cat ttg gtt gcc aag ctc cag ctt tga   624
Pro Ala Gly His His Gln Gly His Leu Val Ala Lys Leu Gln Leu
        195                 200                 205

agaaccaaat taagctacca tgaaaagaag aggaaaagtg agggaacagg aaggttggga 684

ttctctgtgc agagactttg gttccccacg caagccctgg ggcttggaag aagcacatga 744

ccgtactctg cgtggggctc cacctcacac ccacccctgg gcatcttagg actggagggg 804

ctccttggaa aactggaaga agtctcaaca ctgtttcttt ttca                  848
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<210> 36
<211> 207
<212> PRT
<213> Homo sapiens

<400> 36
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Glu Met Lys Leu Lys Gly Lys Pro Asp Gly Ser Phe Leu Val Arg Asp
20 25 30

Ser Ser Asp Pro Arg Tyr Ile Leu Ser Leu Ser Phe Arg Ser Gln Gly
35 40 45

Ile Thr His His Thr Arg Met Glu His Tyr Arg Gly Thr Phe Ser Leu
50 55 60

Trp Cys His Pro Lys Phe Glu Asp Arg Cys Gln Ser Val Val Glu Phe
65 70 75 80

Ile Lys Arg Ala Ile Met His Ser Lys Asn Gly Lys Phe Leu Tyr Phe
85 90 95

Leu Arg Ser Arg Val Pro Gly Leu Pro Pro Thr Pro Val Gln Leu Leu
100 105 110

Tyr Pro Val Ser Arg Phe Ser Asn Val Lys Ser Leu Gln His Leu Cys
115 120 125

Arg Phe Arg Ile Arg Gln Leu Val Arg Ile Asp His Ile Pro Asp Leu
130 135 140

Pro Leu Pro Lys Pro Leu Ile Ser Tyr Ile Arg Lys Phe Tyr Tyr Tyr
145 150 155 160

Asp Pro Gln Glu Glu Val Tyr Leu Ser Leu Lys Glu Ala Gln Arg Gln
165 170 175

Phe Pro Asn Arg Ser Lys Arg Trp Asn Pro Pro Arg Ser Glu Gly Leu
180 185 190

Pro Ala Gly His His Gln Gly His Leu Val Ala Lys Leu Gln Leu
195 200 205

<210> 37
<211> 464
<212> DNA
<213> Mus musculus

<400> 37
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ctctatgaag aggttttaag aatgaatgag attctagaac cagcagctaa tcaggatgga 180

gaaaccagca aggccacctg acacaggtcc tttaattctg tttagtcaca aaagacggct 240

tgtgtgactg tttggatttg gtgatcaaat gtccatgttt acagttgctt ttcccagttt 300

gtgtctttcc caatattgtg aaccttatcc atcttgcctt actcagtttt atttctagtg 360

cactttgttg tgtattattt gtttacctga ccattttcta ctttattctg ctaataaact 420

gtaattctga aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 464

<210> 38
<211> 747
<212> DNA
<213> Homo sapiens

<400> 38
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acgcggacac gtgctctaca gttggacttg ctgccaggga aggcaatgtt aaagtcttaa 180

ggaaactgct caaaaagggc cgaagtgtcg atgttgctga taacagggga tggatgccaa 240

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catctgaaaa ctacattaag atgaagacct ttgaaggttt ctgtgctttg catctcgctg 360

caagtcaagg acattggaaa atcgtacaga ttcttttaga agctggggca gatcctaatg 420

caactacttt agaagaaacg acaccattgt ttttagctgt tgaaaatgga cagatagatg 480

tgttaaggct gttgcttcaa cacggagcaa atgttaatgg atcccattct atgtgtggat 540

ggaactcctt gcaccaggct tcttttcagg aaaatgctga gatcataaaa ttgcttctta 600

gaaaaggagc aaacaaggaa tgccaggatg actttggaat cacaccttta tttgtggctg 660

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aattgtcaag ccttggacaa agctacc 747

<210> 39
<211> 1018
<212> DNA
<213> Homo sapiens

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ggattgccta gaaatattac tccggaatgg tctacagccc agacgcccag gcgtgccttg 180

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tgggaccatg gaaccatata tatgaatttg taaatcatgc aattaaagca caagcaaaat 420

ataaggagtg gttgccacat cttctggttg ctggatttga cccactgatt ctactgtgca 480

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ttctacagca acatattgcc cactgttcca tccctgaccc atctttgtcg tttggaaatt 660

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<211> 1897
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<213> Mus musculus

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aatatattta cmtatatata tatttgtaag aagcatt 1897

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<213> Mus musculus

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<222> (45)
<223> Xaa is unsure

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35 40 45

Leu Ser Phe Ile Val Asp Gly Gln Tyr Met Gly Val Ala Phe Arg Gly
50 55 60

Leu Lys Gly Lys Lys Leu Tyr Pro Val Val Ser Ala Val Trp Gly His
65 70 75 80

Cys Glu Ile Arg Met Arg Tyr Leu Asn Gly Leu Asp Pro Glu Pro Leu
85 90 95

Pro Leu Met Asp Leu Cys Arg Arg Ser Val Arg Leu Ala Leu Gly Lys
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Glu Arg Leu Gly Ala Ile Pro Ala Leu Pro Leu Pro Ala Ser Leu Lys
115 120 125

Ala Tyr Leu Leu Tyr Gln
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<211> 265
<212> DNA
<213> Homo sapiens

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<211> 2438
<212> DNA
<213> Mus musculus

<400> 43
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<210> 44
<211> 542
<212> PRT
<213> Mus musculus

<220>
<221> UNSURE
<222> (94)
<223> Xaa is unsure

<400> 44

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             20                  25                  30

Pro Gly Gly Ser Arg Thr Arg Ser Gly Ser Gly Arg Ala Ser Leu Pro
         35                  40                  45

Arg Leu Ser Glu Arg Arg Val Met Ala Val Val Met Ala Ala Gly Ala
     50                  55                  60

Arg Thr Ala Pro Leu Glu Leu Ser Ser Glu Arg Ser Val Gln Lys Val
 65                  70                  75                  80

Pro Arg Arg Asn Phe Leu Leu Glu Lys Leu Lys Asn Thr Xaa Phe Ile
                 85                  90                  95

Thr Leu Glu Ile Val Lys Asn Leu Phe Lys Met Ala Glu Asn Asn Ser
            100                 105                 110

Lys Asn Val Asp Val Arg Pro Lys Thr Ser Arg Ser Arg Ser Ala Asp
        115                 120                 125

Arg Lys Asp Gly Tyr Val Trp Ser Gly Lys Lys Leu Ser Trp Ser Lys
    130                 135                 140
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Lys Ser Glu Ser Cys Ser Glu Ser Glu Ala Ile Gly Thr Val Glu Asn
145                 150                 155                 160

Val Glu Ile Pro Leu Arg Ser Gln Glu Arg Gln Leu Ser Cys Ser Ser
                165                 170                 175

Ile Glu Leu Asp Leu Asp His Ser Cys Gly His Arg Phe Leu Gly Arg
            180                 185                 190

Ser Leu Lys Gln Lys Leu Gln Asp Ala Val Gly Gln Cys Phe Pro Ile
        195                 200                 205

Lys Asn Cys Ser Gly Arg His Ser Pro Gly Leu Pro Ser Lys Arg Lys
    210                 215                 220

Ile His Ile Ser Glu Leu Met Leu Asp Lys Cys Pro Phe Pro Pro Arg
225                 230                 235                 240

Ser Asp Leu Ala Phe Arg Trp His Phe Ile Lys Arg His Thr Val Pro
                245                 250                 255

Met Ser Pro Asn Ser Asp Glu Trp Val Ser Ala Asp Leu Ser Glu Arg
            260                 265                 270

Lys Leu Arg Asp Ala Gln Leu Lys Arg Arg Asn Thr Glu Asp Asp Ile
        275                 280                 285

Pro Cys Phe Ser His Thr Asn Gly Gln Pro Cys Val Ile Thr Ala Asn
    290                 295                 300

Ser Ala Ser Cys Thr Gly Gly His Ile Thr Gly Ser Met Met Asn Leu
305                 310                 315                 320

Val Thr Asn Asn Ser Ile Glu Asp Ser Asp Met Asp Ser Glu Asp Glu
                325                 330                 335

Ile Ile Thr Leu Cys Thr Ser Ser Arg Lys Arg Asn Lys Pro Arg Trp
            340                 345                 350

Glu Met Glu Glu Glu Ile Leu Gln Leu Glu Ala Pro Pro Lys Phe His
        355                 360                 365

Thr Gln Ile Asp Tyr Val His Cys Leu Val Pro Asp Leu Leu Gln Ile
    370                 375                 380

Ser Asn Asn Pro Cys Tyr Trp Gly Val Met Asp Lys Tyr Ala Ala Glu
385                 390                 395                 400

Ala Leu Leu Glu Gly Lys Pro Glu Gly Thr Phe Leu Leu Arg Asp Ser
                405                 410                 415

Ala Gln Glu Asp Tyr Leu Phe Ser Val Ser Phe Arg Arg Tyr Ser Arg
            420                 425                 430

Ser Leu His Ala Arg Ile Glu Gln Trp Asn His Asn Phe Ser Phe Asp
        435                 440                 445
```

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Ala His Asp Pro Cys Val Phe His Ser Pro Asp Ile Thr Gly Leu Leu
    450                 455                 460

Glu His Tyr Lys Asp Pro Ser Ala Cys Met Phe Phe Glu Pro Leu Leu
465                 470                 475                 480

Ser Thr Pro Leu Ile Arg Thr Phe Pro Phe Ser Leu Gln His Ile Cys
                485                 490                 495

Arg Thr Val Ile Cys Asn Cys Thr Thr Tyr Asp Gly Ile Asp Ala Leu
            500                 505                 510

Pro Ile Pro Ser Pro Met Lys Leu Tyr Leu Lys Glu Tyr His Tyr Lys
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Ser Lys Val Arg Leu Leu Arg Ile Asp Val Pro Glu Gln Gln
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<212> DNA
<213> Mus musculus

<400> 45
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<211> 264
<212> PRT
<213> Mus musculus

<400> 46

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Gln Ala Leu Tyr Ser Asp Phe Ser Pro Pro Glu Gly Leu Glu Glu Leu
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Leu Ser Ala Pro Pro Pro Asp Leu Val Ala Gln Arg His His Gly Trp
         35                  40                  45

Asn Pro Lys Asp Cys Ser Glu Asn Ile Asp Val Lys Glu Gly Gly Leu
     50                  55                  60

Cys Phe Glu Arg Arg Pro Val Ala Gln Ser Thr Asp Gly Val Arg Gly
 65                  70                  75                  80

Lys Arg Gly Tyr Ser Arg Gly Leu His Ala Trp Glu Ile Ser Trp Pro
                 85                  90                  95

Leu Glu Gln Arg Gly Thr His Ala Val Val Gly Val Ala Thr Ala Leu
            100                 105                 110

Ala Pro Leu Gln Ala Asp His Tyr Ala Ala Leu Leu Gly Ser Asn Ser
        115                 120                 125
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Glu Ser Trp Gly Trp Asp Ile Gly Arg Gly Lys Leu Tyr His Gln Ser
130 135 140

Lys Gly Leu Glu Ala Pro Gln Tyr Pro Ala Gly Pro Gln Gly Glu Gln
145 150 155 160

Leu Val Val Pro Glu Arg Leu Leu Val Val Leu Asp Met Glu Glu Gly
165 170 175

Thr Leu Gly Tyr Ser Ile Gly Gly Thr Tyr Leu Gly Pro Ala Phe Arg
180 185 190

Gly Leu Lys Gly Arg Thr Leu Tyr Pro Ser Val Ser Ala Val Trp Gly
195 200 205

Gln Cys Gln Val Arg Ile Arg Tyr Met Gly Glu Arg Arg Val Glu Glu
210 215 220

Pro Gln Ser Leu Leu His Leu Ser Arg Leu Cys Val Arg His Ala Leu
225 230 235 240

Gly Asp Thr Arg Leu Gly Gln Ile Ser Thr Leu Pro Leu Pro Pro Ala
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Met Lys Arg Tyr Leu Leu Tyr Lys
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<211> 263
<212> PRT

<213> Homo sapiens

<400> 48

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        35                  40                  45

Asn Pro Lys Asp Cys Ser Glu Asn Ile Glu Val Lys Glu Gly Gly Leu
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Tyr Phe Glu Arg Arg Pro Val Ala Gln Ser Thr Asp Gly Ala Arg Gly
65                  70                  75                  80

Lys Arg Gly Tyr Ser Arg Gly Leu His Ala Trp Glu Ile Ser Trp Pro
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Leu Glu Gln Arg Gly Thr His Ala Val Val Gly Val Ala Thr Ala Leu
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Ala Pro Leu Gln Thr Asp His Tyr Ala Ala Leu Leu Gly Ser Asn Ser
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Glu Ser Trp Gly Trp Asp Ile Gly Arg Gly Lys Leu Tyr His Gln Ser
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Lys Gly Pro Gly Ala Pro Gln Tyr Pro Ala Gly Thr Gln Gly Glu Gln
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Leu Glu Val Pro Glu Arg Leu Leu Val Val Leu Asp Met Glu Glu Gly
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Thr Leu Gly Tyr Ala Ile Gly Gly Thr Tyr Leu Gly Pro Ala Phe Arg
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Gly Leu Lys Gly Arg Thr Leu Tyr Pro Ala Val Ser Ala Val Trp Gly
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Gln Cys Gln Val Arg Ile Arg Tyr Leu Gly Glu Arg Arg Ala Glu Pro
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<210> 51
<211> 128
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<213> Mus musculus

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<223> Xaa is any amino acid residue

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<223> Xaa can be any amino acid or no amino acid. Position 17-66 can be 1-50 amino acids.

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<223> Xaa is Pro or Asn

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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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Xaa Xaa Xaa Xaa Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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<210> 52
<211> 34
<212> PRT
<213> Mus musculus or Rattus norvegicus

<400> 52
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<210> 53
<211> 32
<212> PRT
<213> Mus musculus

<400> 53
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<210> 54
<211> 33
<212> PRT
<213> Mus musculus

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Leu

<210> 55
<211> 34
<212> PRT
<213> Homo sapiens

<400> 55
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<211> 34
<212> PRT
<213> Mus musculus

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Phe Leu

<210> 57
<211> 34
<212> PRT
<213> Mus musculus

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Phe Leu

<210> 58
<211> 37
<212> PRT
<213> Mus musculus

<400> 58
Pro Arg Thr Leu Leu Ser Leu Cys Arg Val Ala Val Arg Arg Ala Leu
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Ile Lys Lys Phe Leu
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<210> 59
<211> 37
<212> PRT
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Met Leu Arg Phe Leu
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Tyr Leu

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<213> Mus musculus

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Leu Ile Arg Tyr Leu
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<210> 62
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<212> PRT
<213> Homo sapiens

<400> 62
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Tyr Ile

<210> 63
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<212> PRT
<213> Mus musculus

<400> 63
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Pro Arg Ser Leu Gln Asn Tyr Leu
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<213> Mus musculus

<400> 64
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<210> 65
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<213> Mus musculus

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Tyr Leu

<210> 66
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<213> Mus musculus

<400> 66
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Met Lys Arg Tyr Leu
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<210> 67
<211> 37
<212> PRT
<213> Homo sapiens

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Met Lys Arg Tyr Leu
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<210> 68
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<213> Mus musculus

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20 25 30

C5 Phe Leu

Conclude